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BISNIS Search for Partners – Leads from the BioIndustry Initiative

INDUSTRY: MEDICAL EQUIPMENT AND PRODUCTS, PHARMACEUTICALS, HEALTH CARE SERVICES

COMPANY / INSTITUTE:
Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry RAS, Moscow www.ibch.ru

COUNTRY: Russian Federation

EXPRESSION OF HUMAN INTERFERONS IN MILK OF TRANSGENIC ANIMALS

ABSTRACT: Interferons beta and gamma (IFN-β and IFN-γ) are used in the therapy of oncological and autoimmune diseases, as well as in cases of severe viral and bacterial infections accompanied by states of immunodeficiency. IFN-β is the most effective drug currently available for treating multiple sclerosis. Interferons have been produced mainly from cultures of eukaryotic or prokaryotic cells, and this impacts production cost and product quality. Unlike bacteria or yeast, animals produce proteins that have been subject to post-translational modification (glycosylation, carboxylation, phosphorylation). Non-glycosylated proteins, as a rule, are more immunogenic, less active and have shorter half-lives in the bloodstream. Glycosylated proteins can also be produced in cell cultures of higher eukaryotes but at a greater technological and financial cost. Industrial production of glycosylated IFN-γ is currently non-existent. The Institute of Bioorganic Chemistry has created and characterized hybrid genes enabling expression of IFN-γ and IFN-β at high and moderate levels, respectively. The ongoing goals of our project are obtaining transgenic rabbits carrying those genes and developing the technology for the production of medicinal forms of interferons.

TYPE OF PARTNERSHIP OFFERED: Strategic partnership.

COMPANY / INSTITUTE ROLE: Licensing and development partnership.

CURRENT STATE OF DEVELOPMENT: Validation.

INTELLECTUAL PROPERTY STATUS: The hybrid genes are protected under a Russian patent (#2084526, priority date 29 April 1994); additional intellectual property relating to the production mechanism is envisioned, which may be protected through patenting.

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OTHER INFORMATION

Institute representatives will be attending BIO2006 (Chicago, April 9 – 12, 2006) and welcome the opportunity to meet with interested parties during the event. For more information: http://www.biistate.net/docs/bio2006.php or email: EurasiaBio2006@biistate.net

ABOUT COMPANY / INSTITUTE: The Institute specializes in the chemistry and molecular engineering of proteins, nucleic acids, carbohydrates and low molecular bioregulators; novel biologically active substances; mechanisms of biomolecular recognition and signal transduction in biological systems; molecular immunology; enzymology; and biotechnology. The Institute operates a modern pilot plant for chemical and microbiological synthesis of pharmaceutical products. Established in 1959, IBCh RAS is one of Russia's premier research institutions focusing on the molecular mechanisms of disease for developing novel drug therapies. The Institute employs about 800 employees, including 536 highly qualified researchers, 38 Doctors and 264 Candidates of Science. IBCh is also an educational institution, offering postgraduate programs in physicochemical biology and biotechnology to over 70 graduates of the Moscow State University and the Institute of Physics and Technology, among others. The most promising post-graduate students are retained by the institute to continue their research. R&D efforts at the Institute focus on:

- Structure and function of proteins and peptides, and biocatalysis;
- Structure and function of nucleic acids, and genetic engineering processes;
- Structure and function of carbohydrates, lipids and low molecular weight bioregulators;
- Mechanisms of biomolecular recognition and signal transduction in biological systems;
- Molecular and cellular bases of immunity; and
- Design of tools, methods, reagents and materials for biotechnology

MAJOR CUSTOMERS / INTERNATIONAL EXPERIENCE: The Institute has extensive experience with commercial contracts and international grants from organizations such as the International Science & Technology Center (www.istc.ru) and the US Civilian Research & Development Foundation (www.crdf.org), among others.

PARTNERSHIP OPPORTUNITIES FROM BII. The BioIndustry Initiative (BII) is a nonproliferation program of the US Department of State's Bureau of International Security and Nonproliferation - Office of Cooperative Threat Reduction (ISN-CTR). BII's mission is to counter the threat of bioterrorism through targeted transformation of former Soviet biological weapons research and production capacities.